

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

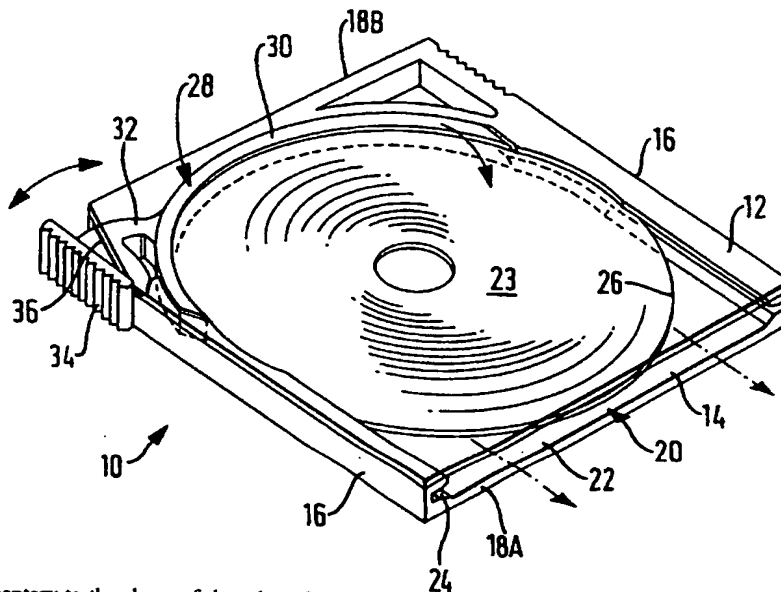
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>G11B 23/03, 33/04</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 95/05661</b> <b>(43) International Publication Date:</b> 23 February 1995 (23.02.95)
<b>(21) International Application Number:</b> PCT/EP94/02746 <b>(22) International Filing Date:</b> 17 August 1994 (17.08.94) <b>(30) Priority Data:</b> 9317056.1 17 August 1993 (17.08.93) GB <b>(71)(72) Applicant and Inventor:</b> GLOGER, Klaus, Willy [DE/US]; Henry, Meier, Jones & Travis LLP, 3710 Thanksgiving Tower, Dallas, TX 75201 (US). <b>(74) Agent:</b> T.K. CONNOR & CO.; 19 Station Road, Sidcup, Kent DA14 7EB (GB).		<b>(81) Designated States:</b> AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

**(54) Title:** DISC CONTAINER**(57) Abstract**

A compact disc container has a slot in one edge through which the disc can be slid into and out of the box and a pivotally mounted ejector for engaging an edge of the disc to displace it at least partly from the box. Tracks at opposite sides of the container receive and guide edge portions of the disc and preventing it contacting the container walls. The disc ejector comprises an arm movable in the container coupled by a web to a user operable trigger outside the container. The ejector may be releasably latched in one or both of its operating positions, e.g. by a ramped member integral with the container and against which the web abuts in moving. The

ejector arm has a curved portion complementary to the shape of the edge of the disc and includes a tapered groove receiving the disc. An integrally moulded frangible security member, an encoded tab, may be arranged to prevent operation of the disc ejector. Projections in the track or resiliently deflectable members formed integrally with or separately from the container engaging the disc act to prevent its inadvertent removal from the container. Means adjacent the slot prevent dirt or dust entering the cavity and means adjacent the slot to wipe the disc as it enters and exits the container. Means for arresting a disc ejected from the container (possibly the wiping means) may be disposed adjacent the slot. A cover for the container comprises a pair of cover members moulded integrally from transparent material with a spine which is releasably fixable to the cover to the container. The spine is convexly curved to magnify information presented therealong.



**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

WO 95/05661

PCT/EP94/02746

1

5

DISC CONTAINER

10

DESCRIPTIONTECHNICAL FIELD

15

The invention relates to a disc container, and more particularly, but not exclusively to a container for storing compact discs.

BACKGROUND ART

20

Known compact disc containers, sometimes known as 'jewel boxes', comprise a base member having hingeably connected along one edge, a cover or top member. The base member has generally centrally located within it a generally circular formation of a plurality of upwardly extending resiliently deformable fingers which in moving from the base member firstly extend inwardly and at their uppermost ends extend outwardly. The upper parts of the fingers define a support on which a compact disc may be located. The support is resiliently deformed as a compact disc is pushed onto it with the fingers flexing inwardly and then outwardly to bear against the central aperture in the disc and allow the disc to be held firmly in position.

30

To remove a disc from such a container a user must uncouple the top and bottom members of the container and pivot the top member about the hinge connection, he or she must then push down on the upper ends of the fingers of the support for the compact disc and at the same time grasp

35

WO 95/05661

PCT/EP94/02746

2

the edges of the disc and lift it away from the support.

It will be appreciated that these disc containers may be difficult to open to enable release of a disc therein and the children, and others, find it particularly  
5 difficult to apply the necessary force first to open the container and then release the compact disc from its support within the container.

It is an object of the invention to provide an arrangement alleviating or overcoming the noted  
10 difficulties.

#### FIELD OF THE INVENTION

In one aspect the invention provides a disc container defining a disc-receiving cavity adapted snugly to receive opposed edge portions of the disc, a slot in one  
15 edge of the container communicating with the cavity and through which the disc may be inserted into and removed from the container in edgewise fashion, and manually operable disc ejector means in the container which are adapted to engage an edge portion of the disc to displace  
20 the disc at least partly from the cavity.

The disc container may comprise an opposed pair of track means provided at opposite sides of the cavity to receive and guide said opposed edge portions of the disc and to limit axial displacement of the disc in the cavity  
25 to prevent contact between a face of the disc and a wall of the cavity.

Preferably, the disc container comprises means in the cavity for engaging and retaining the disc against inadvertent displacement.

30 The retaining means may comprise a projection disposed in the track means.

Alternatively or additionally, the retaining means may comprise resiliently deflectable means projecting into the cavity to engage an edge portion of the disc. In  
35 this case the retaining means preferably comprise an opposed pair of resiliently deflectable means projecting

WO 95/05661

PCT/EP94/02746

3

into the cavity to engage opposed edge portions of the disc.

The resiliently deflectable means may comprise a finger one end of which is fixed to the container and the other end of which is adapted to engage the disc.

The manually operable disc ejector preferably comprises a portion movably mounted in the container, a portion extending into the cavity for engaging the disc and a portion extending externally of the box and adapted for manual actuation by an operator.

Preferably, means are provided for releasably latching the manually operable disc ejector into one, or both, of its operating positions.

The releasable latching means may comprise a ramped member moulded integrally with the container, and against which a movable portion of the ejector abuts to produce a resistance opposing movement of the ejector.

The ejector may be pivotably mounted in the container.

The portion of the ejector for engaging the disc may comprise an arm member having a curved portion which is shaped to be complementary with an edge portion of the disc.

The arm member may have a longitudinally extending groove to receive an edge portion of the disc, and the groove in the arm member may be tapered in cross-section so as to be narrower at its base than at its top.

Preferably, blocking means is provided adjacent to the slot to prevent foreign matter from entering the cavity.

Means may also be provided adjacent to the slot to wipe a face of the disc as it enters and exits the cavity.

Means is preferably provided for arresting a disc ejected from the cavity. The arresting means may be

WO 95/05661

PCT/EP94/02746

4

disposed adjacent to the slot. The wiping means may form the arresting means.

The disc container may comprise an integrally moulded frangible security member arranged to prevent  
5 operation of the disc ejector.

The frangible security member is preferably in the form of an encoded tab.

The disc container may be in the form of a hand-held flat generally rectangular box.

10 In another aspect the invention provides a cover for a disc container comprising a pair of cover members adapted to sandwich and enclose the disc container, a spine hinged to an edge of the respective cover members, and means for releasably fixing the cover members to opposite  
15 sides of the disc container, the cover members being adapted to contain and display information.

Preferably the cover members and spine are moulded integrally from a plastics material.

The cover members may be arranged to carry  
20 printed sheets.

The cover is preferably made from a transparent material.

Preferably the spine is convexly curved in transverse cross-section to magnify information presented  
25 along the spine.

#### INTRODUCTION TO THE DRAWINGS

The above and other aspects of the invention will become apparent from the following description of embodiments of the invention now made by way of example  
30 only and with reference to the accompanying drawings in which:-

Figure 1 is a perspective view of a container according to a first embodiment of the invention showing a compact disc stored within the container;

35 Figure 2 is an assembly view of the container shown in Figure 1;

WO 95/05661

PCT/EP94/02746

5

Figure 3 is a top view of the container shown in Figure 1 illustrating a compact disc being ejected from the container;

5 Figure 4 is an end view of the container shown in Figure 3;

Figure 5 is an assembly view of a container according to a second embodiment of the invention;

10 Figure 6 is a top view of the container shown in Figure 5 illustrating a compact disc being ejected from the container;

Figure 7 is an exploded perspective view of a third embodiment of compact disc container;

Figure 8 is a plan view of the components comprising the Figure 7 embodiment;

15 Figure 9 is a sectioned plan view of the container of Figure 7 in an assembled condition,

Figure 10 is a perspective view of a container with a cover embodying the invention,

20 Figure 11 is a scrap sectional view showing the way of releasing the cover from the container, and

Figure 12 is a scrap perspective view of a further embodiment of disc container having a graphics magnifier along its rear edge.

#### MODE OF PUTTING THE INVENTION INTO EFFECT

25 Figure 1 illustrates a generally rectangular flat container 10 which is made of a clear plastics material and which resembles a compact disc 'jewel box' in overall appearance. The container 10 has top and bottom walls 12 and 14 respectively and first and second pairs of opposed side walls 16 and 18. The container 10 is formed with a recess 20 having a mouth 22 which opens through side wall 18A. Recess 20 is arranged to receive an object such as a compact disc 23.

30 A track 24 extends along each side wall 16 of the container 10. The longitudinal mouth of each track 24 opens into the recess 20. Each track 24 is arranged to

WO 95/05661

PCT/EP94/02746

6

receive a portion of the peripheral edge 26 of the compact disc 22 when it is received in the container 10. In this way, the area of the faces of the compact disc 23 which must be preserved in order to ensure sound quality is prevented from coming into contact with either of the top and bottom walls 12 and 14 of the container 10. The engagement of the peripheral edge 26 of the compact disc 23 in the tracks 24 is best illustrated in Figure 3.

An ejector 28 comprising an arm member 30, a web 32 and a trigger 34 is mounted in the container 10. Web 32 joins the arm member 30 to the trigger 34. Arm member 30 comprises a substantially C-shaped rib which is shaped along one face 30A to be complementary with the inside wall surface 18C of the back wall 18B, and on the other opposite face 30B includes a track 30C which is shaped so as to be complementary with the peripheral edge 26 of the compact disc 22.

The ejector 28 is fitted to the container 10 such that the trigger 34 extends through an aperture 36 in one of the side walls 16 of the container 10. Aperture 36 extends diagonally across one of the corners of the container 10. Trigger 34 is preferably sized and shaped so that it is substantially contained within an area bounded by imaginary extensions of the walls 16 and 18. The ejector 28 is preferably made of a moulded plastics material.

The ejector 28 is pivotally mounted to the container 10 by the interconnection between the innermost end 34A of the trigger 34 and a complementary shaped portion 38 of the side wall 16 (Figure 3). This interconnection enables the ejector 28 to be movable between a first position, in which the arm member 30 is positioned substantially adjacent to the inner surface 18C of side wall 18B, and a second position in which the arm member 30 is displaced from said inner wall surface 18C of the side wall 18B of container 10. The second position of



WO 95/05661

PCT/EP94/02746

7

the arm member 30 is illustrated in Figure 3. Ejector 28 pivots about pivot point 40 as it moves from the first position to the second position.

5 Movement of the arm member 30 from the first to the second position is facilitated by pushing the outermost end 34B of the trigger 34 inwardly of the side wall 16 of container 10. Such movement of the trigger 34 causes the arm member 30 to move from the first position, as illustrated in Figure 1, to the second position, as  
10 illustrated in Figure 3. As the arm member 30 moves from the first to the second position the compact disc 23 is pushed along the tracks 24 in each of the side walls 16 of container 10. When the arm member 30 is in the second position, as illustrated in Figure 3, the compact disc 23  
15 is positioned so that a substantial portion of the disc 23 extends through the mouth 22 of the recess 20 of container 10.

A flexible resilient tongue 50 is formed on one of the side walls 16 of the container 10. The free end 52  
20 of the tongue 50 is arranged to protrude through the bottom wall 24A of the track 24. Thus, when the compact disc 22 is held in the container 10 and the arm member 30 is in the first position, the free end 52 of the tongue 50 engages against the periphery of the compact disc 22. This  
25 engagement between the free end 52 of the tongue 50 and the disc 22 is sufficient to prevent the disc 22 from inadvertently falling out of container 10.

When the arm member 30 is moved, by actuation of the trigger 34, from the first position to the second  
30 position, the periphery 26 of the compact disc 23 is forced against the free end 52 of the tongue 50. The tongue 50 is thereby caused to deflect outwardly, away from the bottom wall 24A of the track 24 so as to enable the disc 22 to pass by it and travel along the track 24 towards the mouth  
35 22 of the container 10.

A second flexible resilient tongue 60 is formed

WO 95/05661

PCT/EP94/02746

8

in one of the side walls 16 substantially adjacent side wall 18A. Second tongue 60 is smaller than tongue 50 but is preferably of similar construction. The second tongue 60 is arranged to prevent the compact disc 22 from exiting  
5 the container too quickly when the trigger 34 is activated with great force.

To prevent dirt and dust entering the recess 30 of the container 10 the mouth 22 of the recess 20 may be fitted with a set of fine soft bristles or a strip of felt  
10 or similar material to prevent entry of dust etc. into the recess 20. Alternatively, a flap may be hingeably mounted across the mouth 22 of the recess 20 to prevent entrance of dust etc. The flap would be arranged to open upon contact of the compact disc 22 on the inside face of the flap when  
15 the arm member 30 is moved from the first to the second position.

The container 10 preferably comprises two moulded parts. The lower part 70 comprising the side walls 16 and 18, the bottom wall 14 and the tongues 50 and 60, and the  
20 upper part 72 comprising the top wall 12.

As shown in Figure 2, the container 10 and ejector 28 may be assembled by fitting the ejector 28 into the lower part 70 so that the innermost end 34A of the trigger 34 is engaged with the complementary shaped portion  
25 38 of the side wall 16 and then attaching the upper part 72 to the lower part 70. The upper part 72 may be attached to the lower part 70 by gluing, ultrasonic welding or the like. The container 10 is easily manufactured and assembled.

30 The embodiment described is particularly advantageous because the compact disc 23 may be quickly and easily removed from the container. The compact disc 23 is placed in the container by inserting the compact disc 23 such that the peripheral edge 26 of the disc 23 is engaged  
35 in the tracks 24. A gentle force is then applied to the compact disc 23 to push the disc 23 inwardly along the

WO 95/05661

PCT/EP94/02746

9

tracks 24 and past the first and second tongues 60 and 50. The first and second tongues 60 and 50 are arranged so that they deflect outwardly away from the track 24 when the edge 26 of the compact disc 23 is forced against them. As the disc 23 is pushed into the container 10 along tracks 24 the edge 26 of disc 23 contacts the arm member 30 to move it from the second position to the first position.

Figures 5 and 6 depict a container 100 in accordance with a second embodiment of the invention. The container 100 is similar to the container shown in Figures 1 to 4, but as best shown in Figure 5, comprises a three piece rather than a two piece construction.

The container 100 shown in Figure 5 and 6 comprises a top cover 102, a bottom cover 104 and a core frame 106 disposed therebetween. A space for receiving a compact disc is defined by the top and bottom covers 102 and 104 and the core frame 106. The top and bottom covers 102 and 104 are each made from a rectangular sheet of plastics material which are bonded to the intermediate core frame 106. The core frame 106 has first and second pairs of opposed side walls 108 and 110. In one of the side walls 108 there is an opening 112 arranged to enable a compact disc 114 to pass therethrough so that it can be contained in the space defined by the three parts of the container. As can be seen in Figure 6, strips 116 of felt or similar material are disposed along opposite sides of the opening 112 to wipe the disc as it is inserted and removed and to act as an arrester during ejection of the disc. A track section 110A and 110B extends from the opening 112 and along a portion of each of the side walls 110 of the container 100.

As best shown in Figure 6, the core frame 106 includes two curved track sections 120A and 120B formed substantially adjacent the side walls 110. The straight track sections 110A, 110B and the curved track sections 120A, 120B are all arranged so as to receive a portion of

WO 95/05661

PCT/EP94/02746

10

peripheral edge 122 of the compact disc 114 when it is received in the container 100.

5 An ejector 130 comprising an arm member 132, a web member 134 and a trigger member 136 is pivotally mounted in the container 100. The ejector 130 may be fitted to the container 100 either during assembly of the top and bottom covers 102, 104 and the core frame 106 or after the container 100 has been completely assembled. The ejector 130 is preferably made of polypropylene and is  
10 thinner than the thickness of the core frame 106. This ensures that the ejector 130 can move back and forth as shown by dotted lines in Figure 6 without the ejector 130 coming into contact with either of the top and bottom covers 102 and 104. The arm member 132 of the ejector 130  
15 comprises a substantially C-shaped rib which is shaped along one face 132A so as to be complementary with the inside surface 106A of the core frame 106. Along the other face 132B the arm member 132 has a track 132C which is shaped to receive the peripheral edge 122 of a compact disc  
20 114.

The ejector 130 is substantially similar to the ejector 28 of the first described embodiment of the invention. The only substantial difference is in the manner of interconnection of the ejector 130 to the core  
25 frame 106. The ejector 130 is pivotally connected to the core frame 106 by means of a circular member 140 which is received in a socket 142 in the core frame 106. The interconnection of the ejector 130 to the container 100 is such that the ejector 130 pivots about pivot point 144 when  
30 the trigger 136 is pushed inwardly.

A compact disc 114 is inserted into the container 100 by passing the disc 114 through the opening 112 in the side wall 108. As best shown in Figure 6, as the compact disc 114 is inserted its peripheral edge 122 enter the  
35 straight tracks section 110A, 110B on the side walls 106. As the compact disc is pushed further into the container

WO 95/05661

PCT/EP94/02746

11

100, portions of the peripheral edge 122 of the disc 114 engage with each of the first ends 150 of the curved track sections 120A, 120B. The curved track sections 120A, 120B are constructed in such a manner that the first ends 150 can flex outwardly towards their adjacent side walls 110. This movement of the first ends 150 of the curved track sections 120A, 120B is depicted by the dotted outline in Figure 6. As the compact disc 114 is pushed further inwardly of the container 100 the peripheral edge 122 of the disc 114 slides along the curved track sections 120A, 120B until a portion of the peripheral edge 122 enters the track 132C in the arm member 130. At this point the first ends 150 of the curved track sections 120A, 120B flex inwardly to their original positions.

To eject the compact disc 114 from the container 100, the trigger 136 of the ejector 130 is pushed inwardly which causes the arm member 123 to push the compact disc 114 out of the container. The pressure applied to the disc 114 by the arm member 132 is sufficient to cause the first ends 150 of the curved track sections 120A, 120B to move outwardly towards the side walls 110 so as to enable the disc to move freely along the straight track sections 110A, 110B and out of the container 100.

The straight track sections 110A, 110B the curved track sections 120A, 120B and the track 132C in the arm member 132 are arranged such that when a compact disc 114 moves in or out of the container 100 and when the disc 114 is stored in the container the screen printed faces of the disc do not come into contact with the top or bottom covers 102 and 104.

The free end portions 150 of the curved track sections 120A, 120B ensure that a compact disc 114 contained within the container 100 is not inadvertently released from the container. The free end portions 150 act in a similar manner to the tongue 50 described in relation to the first embodiment of the invention.

WO 95/05661

PCT/EP94/02746

12

Positioned across the width of the inner side of the top and bottom covers 102 and 104 and adjacent the opening 112 are thin strips of felt or other soft material which clean the top and bottom faces of the disc 114 as it is inserted into and taken out of container 100. The opening 112 may be provided with a flap or bristles to prevent dust or dirt from entering the container.

The embodiment shown in Figures 7 to 11 is generally similar to that described above with reference to Figures 1 to 4 and only the most important differences will be described.

Figures 7 to 11 illustrate a third disc container embodying the invention and show it to comprise top and bottom walls 200 and 202 respectively. Bottom wall 202 carries an opposed pair of side walls 204A and 204B and a back wall 206 for the container. When the top wall 200 is placed on the upper edges of the side and back walls 204A and 204B and 206A recess 208 is formed with a mouth 210 through which a disc, for example a compact disc, may be passed for location within the container.

Facing surfaces of the top and bottom walls 200 and 202 are formed, adjacent the mouth 210, with a series of lands 212 and 214 respectively which act to stiffen the container and to locate along the edges of those walls strips 216 and 218 of felt or other soft material which are fixed to the top and bottom walls respectively. Strips 216 and 218 act to clean any compact disc which is passed to or taken from the container.

The bottom wall 202 is partially broken away at the corner of the side wall 204A and back wall 206 to allow insertion of an ejector mechanism 220 which will be described below.

The area of the top wall 200 in register with the broken portion of the bottom wall 202 is formed as a tab section 208 which is joined to the main part of the top wall by two, thin, membranes 210 which are readily

WO 95/05661

PCT/EP94/02746

13

breakable so that the tab section 208 may be easily broken away.

The top and bottom walls 200 and 202 are further provided with apertures 212 which, when the container is assembled, are in register one with the other. The apertures 212 receive spigots 214 of the ejector mechanism 220.

The ejector mechanism comprises an arm 222 joined by a web 214 to a trigger 226. An extension 224A of the web carries the spigots 214.

The arm 222 comprises a substantially C-shaped rib shaped formed along one face 222A with a slot similar to that found in the arm 30 of the embodiment first described above. When fully retracted the face 222B of arm 222 opposed to the face 222A bears against a series of upstanding pins 227 formed on the top and bottom walls 200 and 202 in register one with the other as shown.

It will be seen that the trigger 226 of the ejector mechanism 220 is accessible from outside the container with the web 224 passing through the aperture formed by the broken sections of the side and back walls 204A and 206.

The bottom container wall 200 is further formed with a bevelled or a round abutment 228 which lies in the path of the web extension 224A.

The bottom wall 200 has further formed on its surface two sets 230 of three projections. Two of the projections 230A and 230B of each set of projections 230 extend generally parallel to the back wall 206 of the container and are coaxial whilst the third projection 230C of each set 230 is spaced towards the back wall of the container from the line joining the first two projections 230A and 230B. The projections 230 have upward extensions such that they bear on the top wall when the container is assembled.

The sets of projections 230 are shaped to inter-

WO 95/05661

PCT/EP94/02746

14

engage with and hold captive on the bottom wall 200 of the container ends 232 of flexible fingers 234 for retaining a disc within the container. As can be seen the end 232 of the fingers 234 are shaped to conform to the shape and disposition of the projections 230 so that the fingers 234 are firmly held in the container when the top and bottom walls 200 and 202 are joined.

Along their length fingers 234 have faces 234A conforming to the face 222A of the arm 222 of the ejector mechanism and it will be appreciated that, in use, the fingers 234 are shaped and disposed to receive the edge 236 of, and support, a compact disc 238 passed to the container.

It will be appreciated that when assembled it will be possible for a user to push a disc 238 into the container through the mouth 210 and on being pushed into the container in this way the disc will be wiped by the felt strips 216 and 218 and received in the slots 234A of the fingers 234 the leading ends 240 of which resiliently flex outwardly to allow the disc to be pushed between the fingers. The disc may be pushed into the container until it bears against and is received in the slot 222A of the arm 222 of the ejector mechanism 220 and, if that arm is not in its disc receiving position (as shown in Figure 9) the arm 222 will be pushed back until it bears against the pins 227.

The disc will be safely received in the container and held therein between the fingers 234.

It will be appreciated that the ejector mechanism cannot be operated to release the disc from the container whilst the tab section 208 is in position. The tab section lies in the path the trigger 226 preventing movement of the ejector mechanism 220 whilst it is in place. It is therefore necessary for a user to remove the tab section 208 - by breaking the membranes 210 - to allow the ejector mechanism 220 to move.



WO 95/05661

PCT/EP94/02746

15

It will be seen that tab 208 acts as a security device preventing a disc being taken from the container until desired. As illustrated (Figures 9 and 12) the tab 208 may carry a bar code or other suitable security code markings.

Once the tab section 208 has been removed it is possible for a user to press the trigger 226 causing the ejector mechanism to pivot about the spigots 214 and move arm 222 forwardly within the container pushing the disc 238 which is supported by the arm 222 and fingers 234 forwardly until it is partially ejected from the container via mouth 210. In moving in this way the web extensions 224A will engage with the ramped abutment 228 in its path and the ejector mechanism will be held in position, - its movement within the empty container being prevented.

A disc container of this embodiment of the invention may further be provided with a cover 240 comprising a pair of cover members 242 each connected, and hinged, to a spine 244 so that the cover may be opened in the manner of a book. The cover is preferably moulded in one piece from a clear, flexible, plastics material with integral living hinges 246.

The cover members may carry graphical material, e.g. printed material, or that material may be provided on an insert layer (for example of printed paper) or by being printed on the container top and bottom walls.

The spine 244 of the cover is preferably convexly curved as shown in transverse cross section so that it may act as a magnifier for any graphical material printed on the spine, or on an insert resting on (or printed on) the rear wall of the container.

The side walls 204A and 204B of the container in this arrangement extend past the edges of the top and bottom walls 200 and 202 the free edges of the cover member formed with lips as shown at 248 to overlies the top and bottom walls 200 and 202 and fit within the angle formed

WO 95/05661

PCT/EP94/02746

16

between the edges of the top and bottom walls 200 and 202 and the side walls 204A and 204B.

Sections 250 of the lips 248 of the cover member are provided with beads 252 are receivable in grooves 254  
5 formed in the angle between the side edges 204A and 204B and the top and bottom walls 200 and 202 of the container.

In this way the cover member may be securely held on the container.

To ease removal of the cover members from the  
10 container the side walls 204A and 204B may be provided with indented section 256 adjacent the positions of the beaded lip sections 250 of the cover to enable a user to insert a finger tip and lift the bead 252 on the lip 248 of the cover member out of the groove 254 in which it is engaged  
15 thereby releasing the cover.

Another arrangement embodied in this invention may provide that the container is provided with a magnifying strip 258 which is attached to the rear wall of the container enabling any graphical material on that rear  
20 wall to be more easily read.

#### INDUSTRIAL APPLICABILITY

It will be seen from the foregoing description of various embodiments of the present invention that there is provided a novel form of compact disc container which is  
25 more readily and easily useable than those presently available. In particular it will be appreciated that the present invention provides a form of container for a disc, which disc is removable from the container by simple depression of a trigger accessible by a user from without  
30 the container.

WO 95/05661

PCT/EP94/02746

17

CLAIMS

1. A disc container defining a disc-containing cavity adapted snugly to receive opposed edge portions of a disc, a slot in one edge of the container communicating with the cavity and through which a disc can be inserted into and taken from the container in edgewise fashion, and manually operable disc ejector means in the container adapted to engage an edge portion of the disc to displace the disc at least partly from the cavity.
2. A disc container according to Claim 1, comprising an opposed pair of track means provided at opposite sides of the cavity to receive and guide opposed edge portions of a disc and to limit axial displacement of the disc in the cavity to prevent contact between a face of the disc and a wall of the cavity.
3. A disc container according to Claim 1 or Claim 2, comprising means in the cavity for engaging and retaining the disc against inadvertent displacement.
4. A disc container according to Claim 3 when dependent on Claim 2, wherein the retaining means comprises a projection disposed in the track means.
5. A disc container according to Claim 3 or Claim 4, wherein the retaining means comprises resiliently deflectable means projecting into the cavity to engage an edge portion of the disc.
6. A disc container according to Claim 5, wherein the retaining means comprise an opposed pair of resiliently deflectable means projecting into the cavity to engage opposed edge portions of the disc.
7. A container as claimed in Claim 6, wherein the resiliently deflectable means comprises a pair of fingers engagable with projections found on a container wall and adapted to receive edge portions of a disc passed to the container.
8. A disc container according to Claim 4 or Claim 5, wherein the resiliently deflectable means

WO 95/05661

PCT/EP94/02746

18

comprises a finger one end of which is fixed to the container and the other end of which is adapted to engage the disc.

5 9. A disc container according to any one of the preceding claims, wherein the manually operable disc ejector means comprises a portion movably mounted in the container, a portion extending into the cavity for engaging a disc therein and a portion extending externally of the container and adapted for manual actuation by a user.

10 10. A disc container according to Claim 9, comprising means for releasably latching the manually operable disc ejector means into one of its operating positions.

15 11. A hand held disc container according to Claim 9 or Claim 10, comprising means for releasably latching the manually operable disc ejector means into both of its operating positions.

20 12. A disc container according to any one of the preceding claims, wherein the releasable latching means comprises a ramped member moulded integrally with the container, and against which a movable portion of the ejector means abuts to produce a resistance opposing movement of the ejector.

25 13. A disc container according to any one of the preceding claims, wherein the ejector means is pivotally mounted in the container.

30 14. A disc container according to any one of Claims 8 to 12, wherein the portion of the ejector means for engaging the disc comprises an arm member having a curved portion which is shaped to be complementary with an edge portion of the disc.

15. A disc container according to Claim 14, wherein the arm member has a longitudinally extending groove to receive an edge portion of the disc.

35 16. A disc container according to Claim 15, wherein the groove in the arm member is tapered in cross-

WO 95/05661

PCT/EP94/02746

19

section so as to be narrower at its base than at its top.

17. A disc container according to any one of the preceding claims, comprising blocking means adjacent the slot to prevent foreign matter from entering the cavity.

5 18. A disc container according to any one of the preceding claims, comprising means adjacent the slot to wipe a face of the disc as it enters and exits the cavity.

10 19. A disc container according to any one of the preceding claims, comprising means for arresting a disc ejected from the cavity.

20. A disc container according to claim 19, wherein the arresting means is disposed adjacent to the slot.

15 21. A disc container according to Claims 18 and Claim 19, wherein the wiping means forms the arresting means.

20 22. A disc container according to any one of the preceding claims, comprising an integrally moulded frangible security member arranged to prevent operation of the disc ejector.

23. A disc container according to Claim 22, wherein the frangible security member is in the form of an encoded tab.

25 24. A disc container according to any one of the preceding claims, in the form of a hand held flat generally rectangular box.

30 25. A cover for a disc container as claimed in any one of the preceding claims, comprising a pair of cover members adapted to sandwich and enclose the disc container, a spine hinged to an edge of the respective cover members, and means for releasably fixing the cover members to opposite sides of the disc container, the cover members being adapted to contain and display information.

35 26. A cover according to Claim 25, wherein the cover members and spine are moulded integrally from a plastics material.

WO 95/05661

PCT/EP94/02746

20

27. A cover according to Claim 25 or Claim 26, wherein the cover members are arranged to carry printed sheets.

28. A cover according to any one of claims 24 to 26, wherein the cover is made from a transparent material.

29. A cover according to any one of claims 25 to 28, wherein the spine is convexly curved in transverse cross-section to magnify information presented along the spine.

30. A cover according to any one of claims 1 to 23, including a convexly curved in transverse cross-section transparent member adapted to be fixed to and over a rear wall of the container to act to magnify the graphical information thereon.

31. A disc container as claimed in Claim 1 and substantially as herein described with reference to Figures 1 to 4 of the accompanying drawings.

32. A disc container as claimed in Claim 1 and substantially as herein described with reference to Figures 5 and 6 of the accompanying drawings.

33. A disc container as claimed in Claim 1 and substantially as herein described with reference to Figures 7 to 12 of the accompanying drawings.

34. A cover for a disc container as claimed in Claim 24 and substantially as herein described with reference to Figures 10, 11 and 12 of the accompanying drawings.

35. A magnifying attachment as claimed in Claim 29 for use with a disc container and substantially as hereinbefore described with reference to Figure 12 of the accompanying drawings.

**WO 95/05661**

**PCT/EP94/02746**

1 / 10

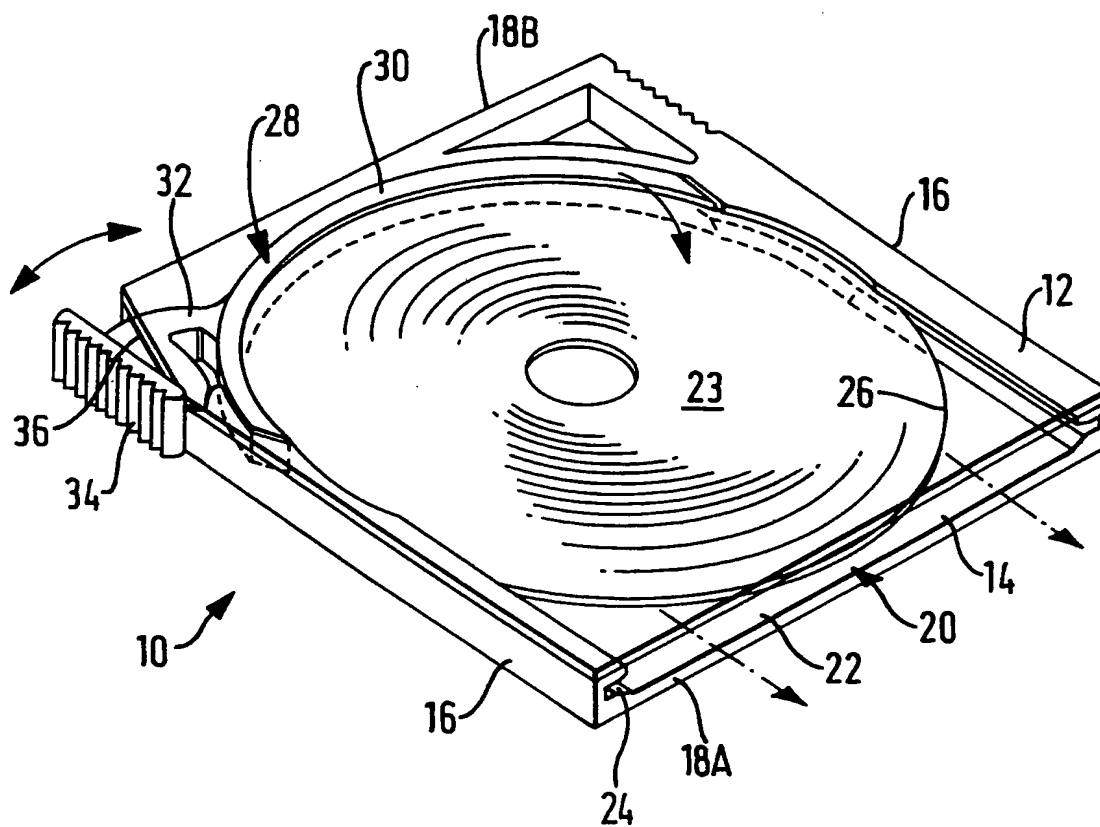


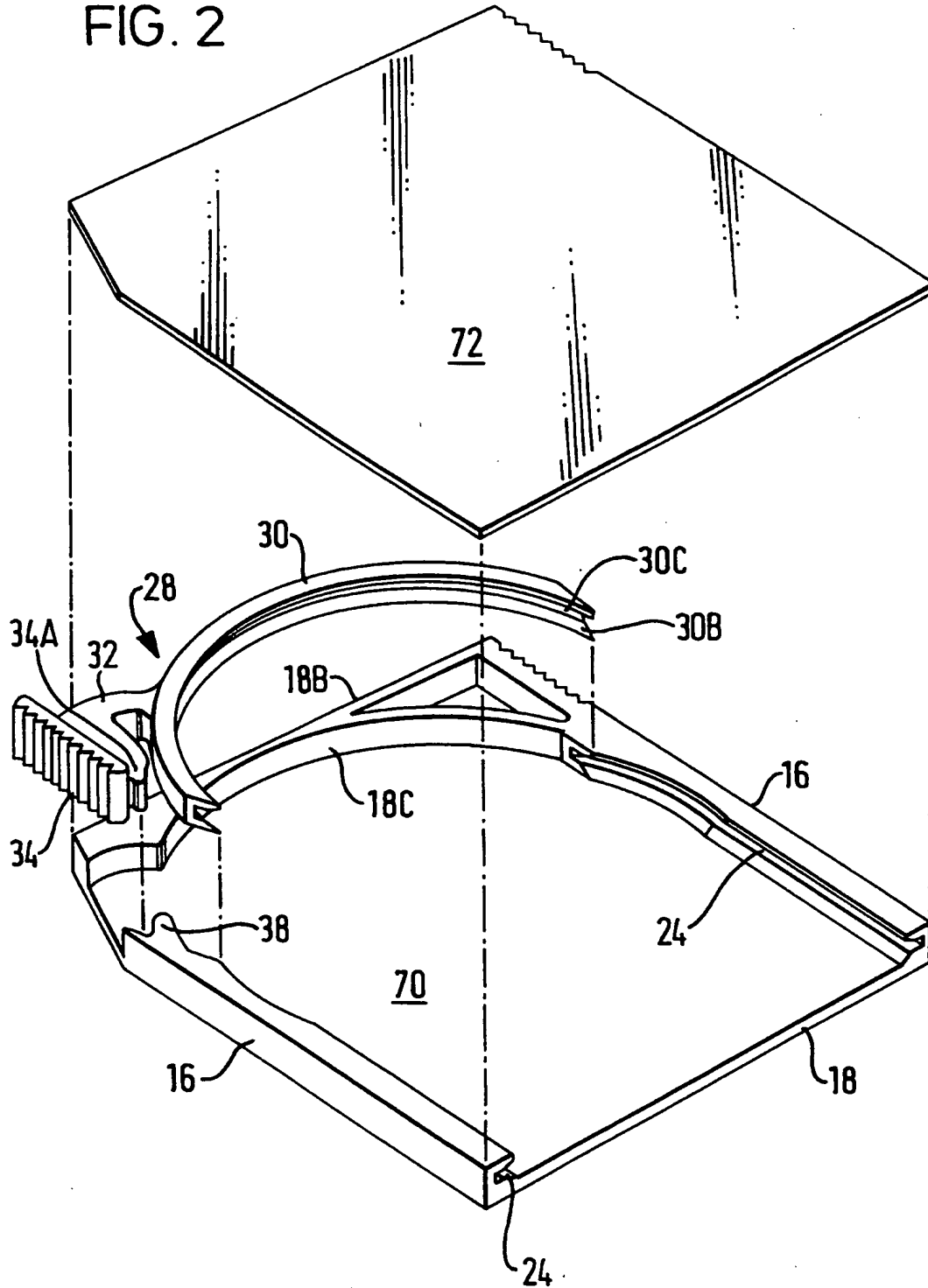
FIG. 1

WO 95/05661

PCT/EP94/02746

2/10

FIG. 2





WO 95/05661

PCT/EP94/02746

FIG. 3

3 / 10

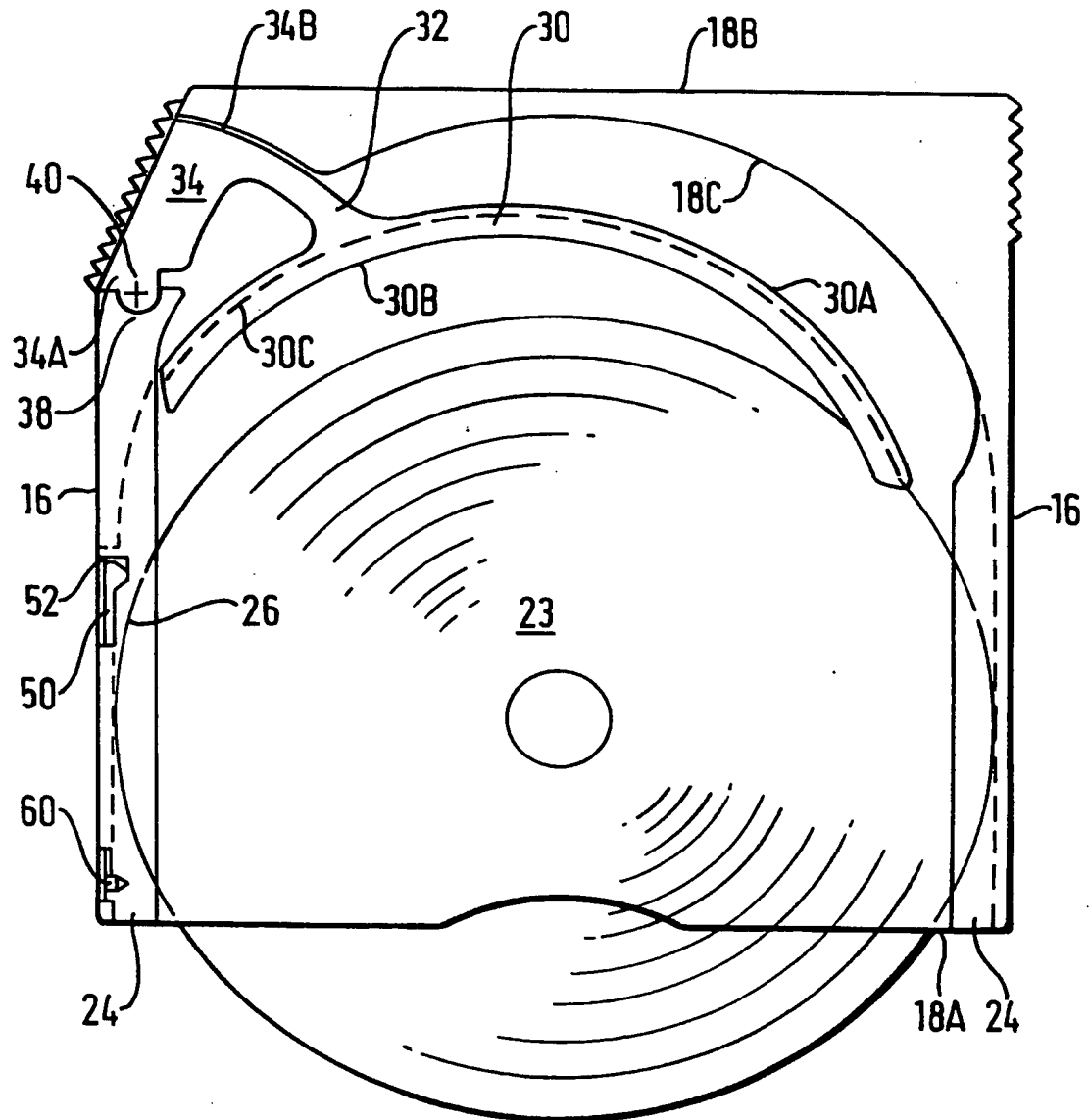


FIG. 4

WO 95/05661

PCT/EP94/02746

4/10

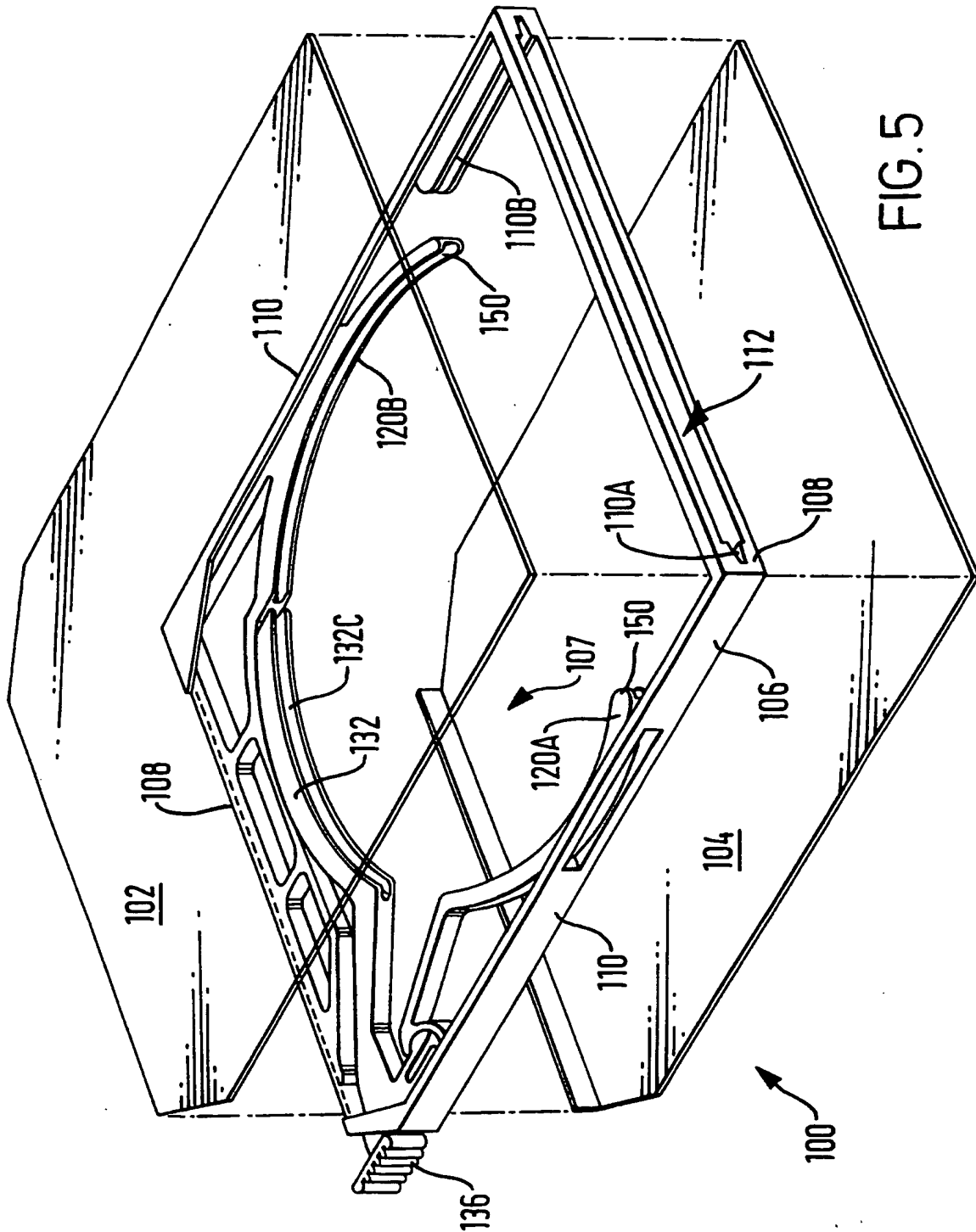


FIG. 5

WO 95/05661

PCT/EP94/02746

5/10

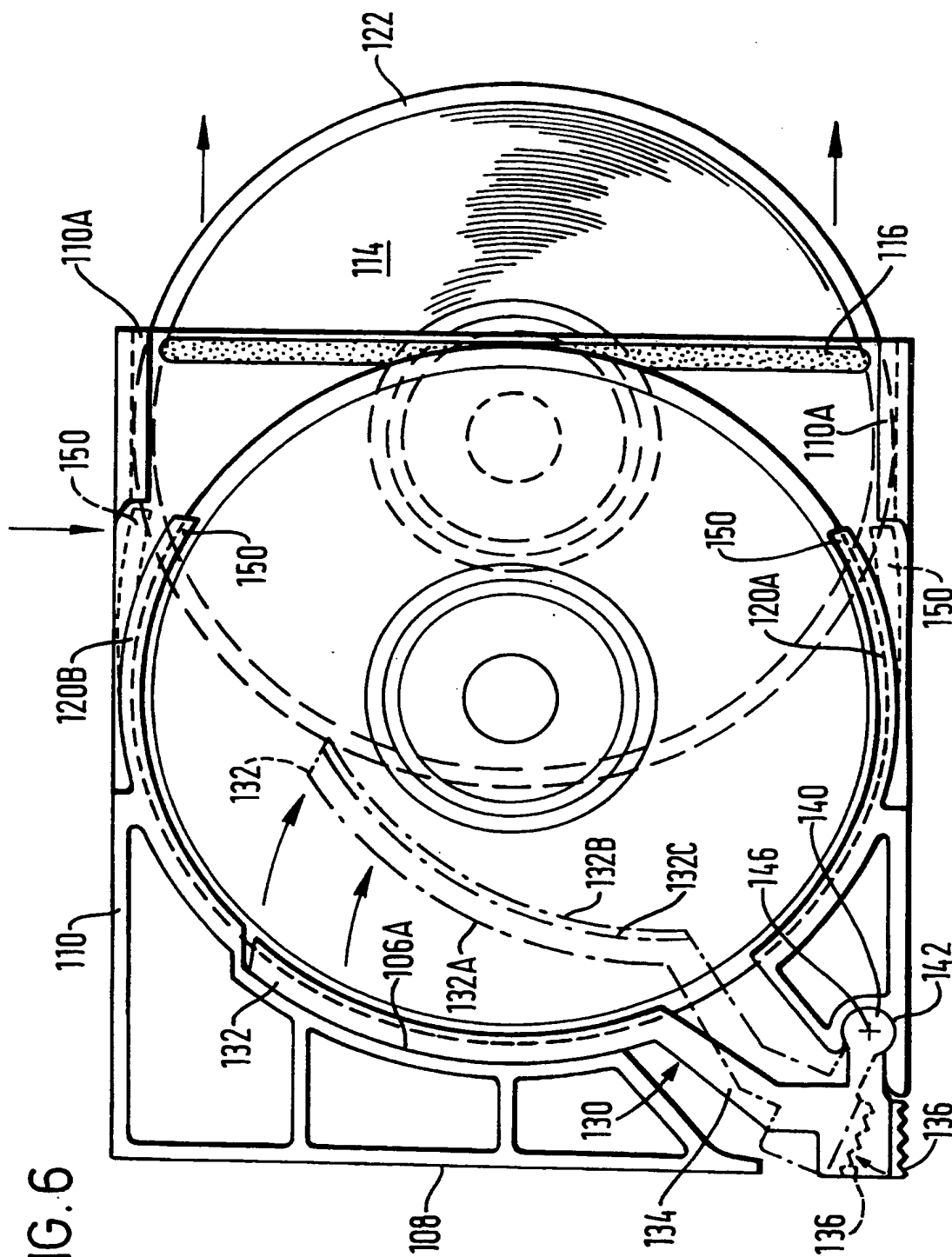


FIG. 6



**WO 95/05661**

**PCT/EP94/02746**

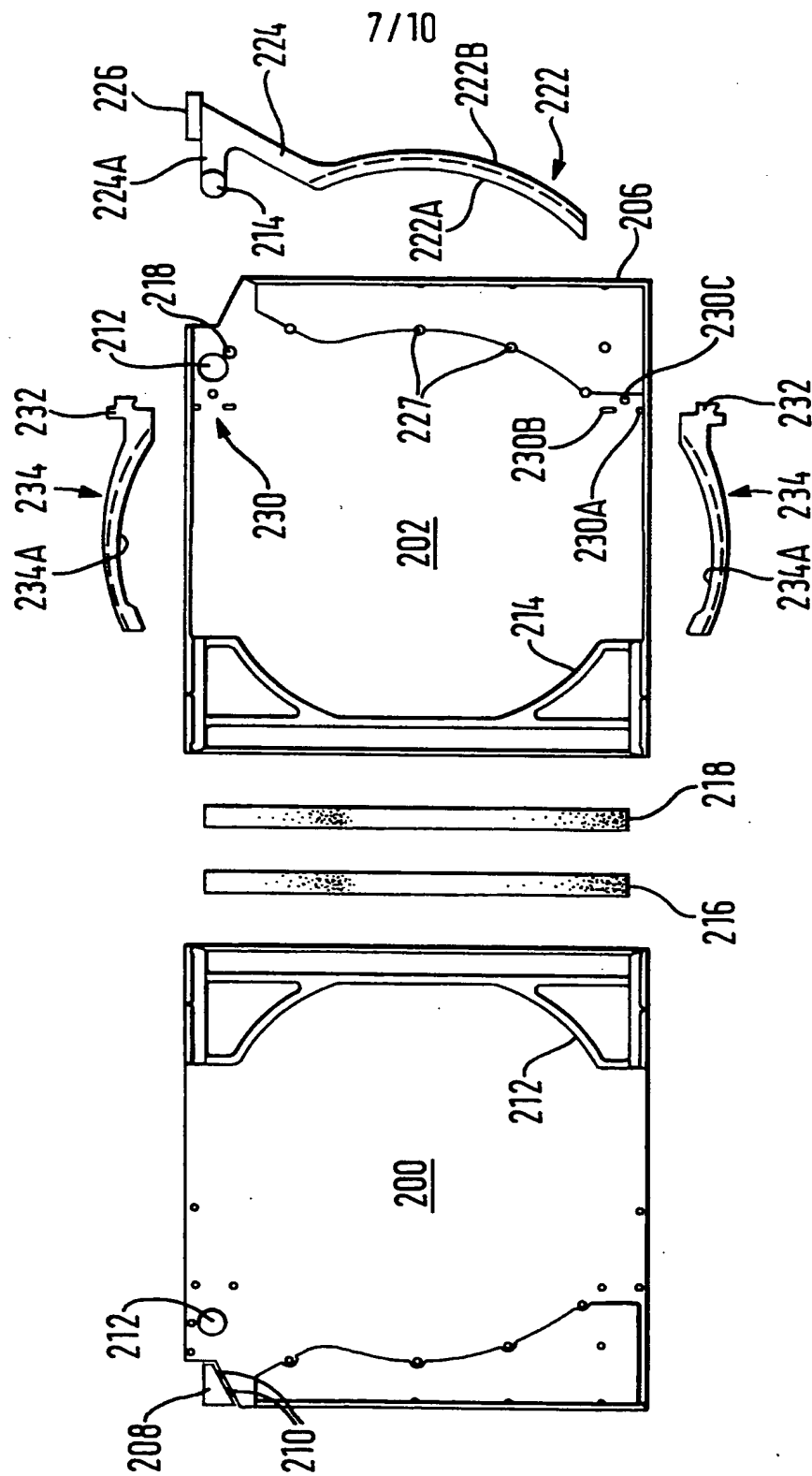


FIG. 8

WO 95/05661

PCT/EP94/02746

8/10

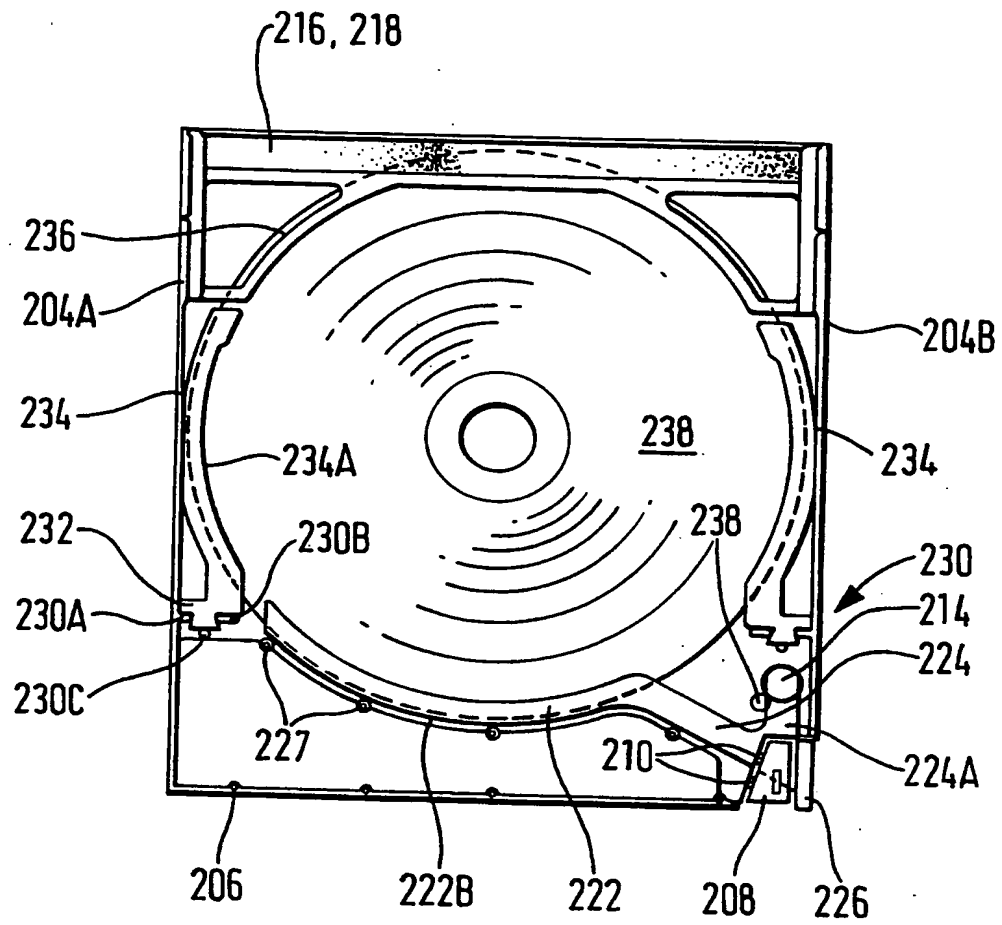


FIG. 9



WO 95/05661

PCT/EP94/02746

10/10

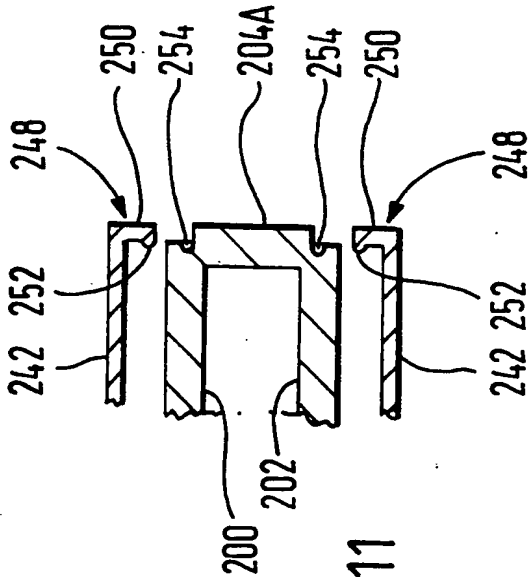


FIG.11

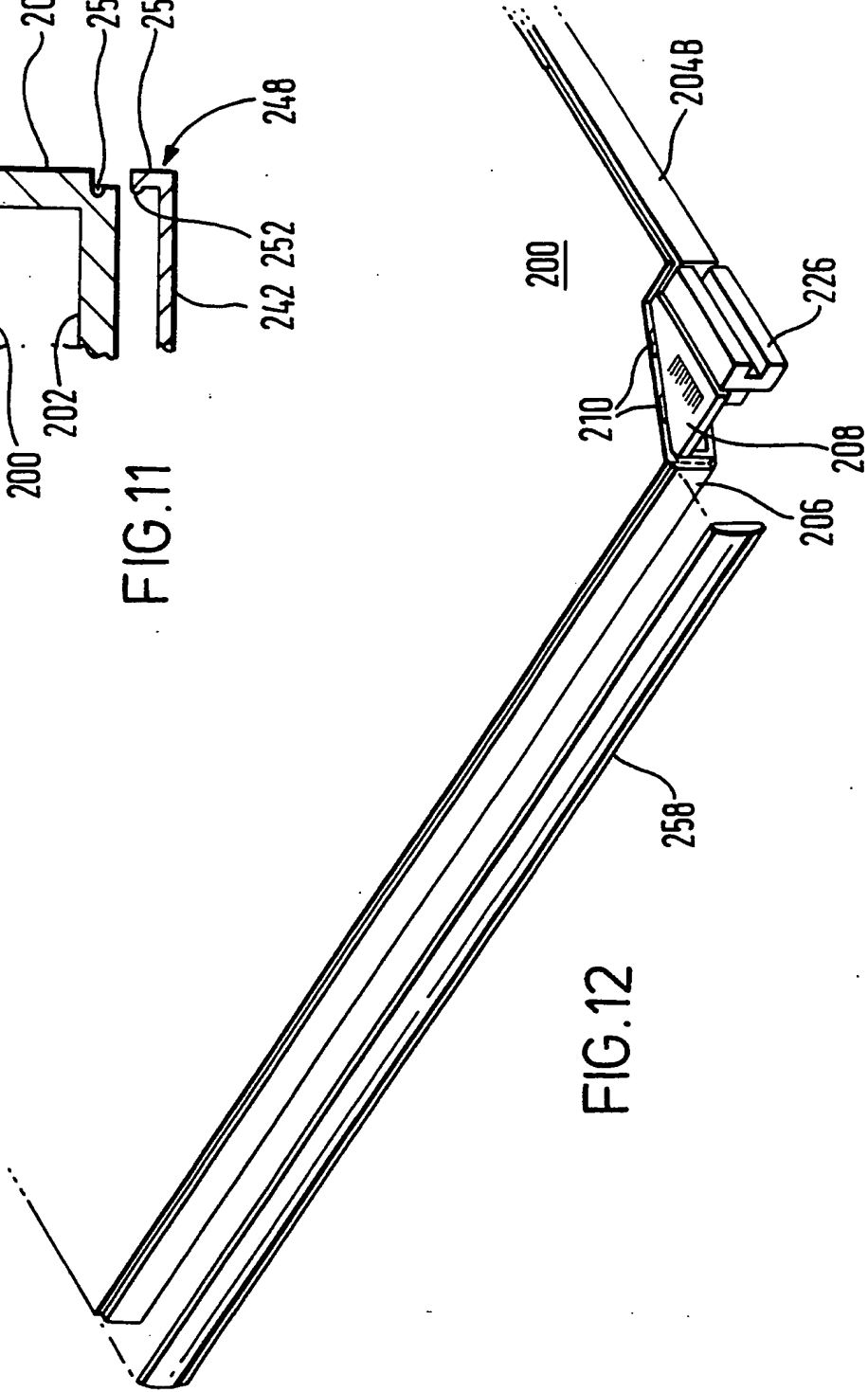


FIG.12



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP 94/02746

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 G11B23/03 G11B33/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	EP,A,0 568 729 (HERBERT RICHTER METALLWAREN-APPARATEBAU GMBH & CO.) 10 November 1993 see column 4, line 14 - column 6, line 52; figures 1,2	1-16
X	DE,U,92 05 830 (HERBERT RICHTER METALLWAREN-APPARATEBAU GMBH & CO.) 25 June 1992 see page 3, paragraph 2; figure 1	1-6
X	DE,A,23 07 410 (FÜWESI, PETER) 29 August 1974 see page 2, paragraph 2 - page 3, paragraph 2; figure 2	1,17-21
	--- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

21 December 1994

Date of mailing of the international search report

13.01.95

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tlx. 31 651 epo nl,  
Fax (+31-70) 340-3016

Authorized officer

Ressenaar, J-P

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP 94/02746

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE,A,30 08 513 (JÄHRLING, HORST ET AL.) 17 September 1981 see page 5, line 27 - page 6, line 24 ---	1-20
X	FR,A,2 644 439 (NISENAGE, JAUQUES) 21 September 1990 see page 4, line 19 - page 5, line 30; figures 1-5 ---	1,17-21
A	EP,A,0 355 011 (MATSUSHITA ELECTRIC INDUSTRIAL CO. LTD.) 21 February 1990 see column 6, line 8 - column 7, line 34 ---	1-9
A	US,A,4 964 510 (LOYD) 23 October 1990 see column 4, line 56 - column 5, line 66 ---	1
A	US,A,5 011 010 (FRANCIS ET AL.) 30 April 1991 see column 3, line 30 - column 4, line 53 ---	1
A	DE,U,92 02 186 (BRUGGE, HEINRICH) 23 April 1992 see the whole document -----	1

Form PCT ISA/210 (continuation of second sheet) (July 1992)

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/EP 94/02746

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A-0568729	10-11-93	DE-U- 9205830	25-06-92
		JP-A- 6127589	10-05-94
		US-A- 5346295	13-09-94
DE-U-9205830	25-06-92	EP-A- 0568729	10-11-93
		JP-A- 6127589	10-05-94
		US-A- 5346295	13-09-94
DE-A-2307410	29-08-74	NONE	
DE-A-3008513	17-09-81	NONE	
FR-A-2644439	21-09-90	NONE	
EP-A-0355011	21-02-90	JP-A- 3025773	04-02-91
		JP-A- 2049285	19-02-90
		JP-A- 2049286	19-02-90
		JP-A- 2049287	19-02-90
		JP-A- 2054487	23-02-90
		JP-A- 2054488	23-02-90
		JP-A- 2054489	23-02-90
		JP-A- 2096991	09-04-90
		JP-A- 2113482	25-04-90
		DE-D- 68919158	08-12-94
		US-A- 5058100	15-10-91
US-A-4964510	23-10-90	NONE	
US-A-5011010	30-04-91	NONE	
DE-U-9202186	23-04-92	NONE	